

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions, and listings, of claims in the application:

1 1. (Currently Amended) A method ~~for use~~ executable by at least one processor in a
2 database system, comprising:
3 receiving, by the at least one processor, a query that specifies an aggregate on distinct
4 values of at least one attribute, the query further specifying grouping on plural grouping sets, the
5 plural grouping sets having at least a first grouping set and a second grouping set;
6 identifying, by the at least one processor, distinct values of the at least one attribute and
7 storing the distinct values of the at least one attribute in a first table;
8 computing, by the at least one processor, aggregates for groups specified by the first
9 grouping set using the first table; and
10 computing, by the at least one processor, aggregates for groups specified by the second
11 grouping set using the first table.

1 2. (Currently Amended) The method of claim 1, wherein the first grouping set is lower
2 level grouping set than the second grouping set, and wherein the first grouping set has a larger
3 number of attributes than the second grouping set.

1 3. (Original) The method of claim 1, wherein identifying the distinct values of the at least
2 one attribute comprises computing a group-by operation on the first grouping set and selecting
3 the attributes of the first grouping set for output.

1 4. (Currently Amended) The method of claim 3, wherein storing the distinct values of the at
2 least one attribute in the first ~~[[able]]~~ table comprises storing the distinct values of the at least
3 one attribute in a spool file.

1 5. (Original) The method of claim 3, further comprising:

2 using the first table to identify distinct values of the at least one attribute for groups
3 defined by the second grouping set; and

4 storing the distinct values of the at least one attribute for the groups defined by the second
5 grouping set in a second table.

1 6. (Original) The method of claim 5, wherein computing aggregates for the groups
2 specified by the second grouping set is based on the second table.

1 7. (Original) The method of claim 6, wherein identifying distinct values of the at least one
2 attribute for groups defined by the second grouping set comprises computing a group-by
3 operation on the first table based on the second grouping set and selecting one or more attributes
4 of the second grouping set for output.

1 8. (Original) An article comprising at least one storage medium containing instructions that
2 when executed cause a system to:

3 receive a query that specifies an aggregate on distinct values of at least one attribute, the
4 query further specifying grouping on plural grouping sets, the plural grouping sets having at least
5 a first grouping set and a second grouping set;

6 identify distinct values of the at least one attribute and storing the distinct values of the at
7 least one attribute in a first table;

8 compute aggregates for groups specified by the first grouping set using the first table; and

9 compute aggregates for groups specified by the second grouping set using the first table.

1 9. (Currently Amended) The article of claim 8, wherein the first grouping set is lower level
2 grouping set than the second grouping set, and wherein the first grouping set has a larger number
3 of attributes than the second grouping set.

1 10. (Original) The article of claim 8, wherein identifying the distinct values of the at least
2 one attribute comprises computing a group-by operation on the first grouping set and selecting
3 the attributes of the first grouping set for output.

1 11. (Original) The article of claim 10, wherein storing the distinct values of the at least one
2 attribute in the first table comprises storing the distinct values of the at least one attribute in a
3 spool file.

1 12. (Original) The article of claim 10, wherein the instructions when executed cause the
2 database system to further:
3 use the first table to identify distinct values of the at least one attribute for groups defined
4 by the second grouping set; and
5 store the distinct values of the at least one attribute for the groups defined by the second
6 grouping set in a second table.

1 13. (Original) The article of claim 12, wherein computing aggregates for the groups
2 specified by the second grouping set is based on the second table.

1 14. (Original) The article of claim 13, wherein identifying distinct values of the at least one
2 attribute for groups defined by the second grouping set comprises computing a group-by
3 operation on the first table based on the second grouping set and selecting one or more attributes
4 of the second grouping set for output.

1 15. (Currently Amended) A database system comprising:
2 a storage to store a table; and
3 ~~a controller~~ at least one processor to:
4 receive a query that specifies a calculation of an aggregate on distinct values of an
5 attribute in the table, the query to specify group-by operations on plural grouping sets;
6 in processing the query, compute intermediate values for storage in an
7 intermediate spool; and
8 use the intermediate values in the intermediate spool for computing results of at
9 least two group-by operations on at least two corresponding grouping sets.

1 16. (Original) The database system of claim 15, wherein the query comprises a Structured
2 Query Language (SQL) SELECT statement containing a GROUP BY clause specifying multiple
3 grouping sets.

1 17. (Original) The database system of claim 15, wherein the query specifies group-by
2 operations on plural grouping sets at multiple grouping levels.

1 18. (Currently Amended) The database system of claim 15, ~~wherein the controller comprises~~
2 further comprising database management software executable on the at least one processor to
3 perform the receiving, computing, and using acts.

1 19. (Original) The database system of claim 18, wherein the database management software
2 comprises plural access modules, and the storage comprises plural storage modules accessible by
3 the plural access modules in parallel.

1 20. (Original) The database system of claim 19, further comprising plural processors, the
2 access modules executable on the processors.